

Investigation of the correlation of prognostic parameters in cases of endometrium carcinoma

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ABSTRACT

Aims: Endometrial carcinoma is the most common gynecological cancer in developed countries and the second most common in Türkiye. Due to its significant impact on survival rates, recurrence rates, as well as treatment and post-treatment approaches, identifying and studying prognostic factors is of great importance. This article aims to review the prognostic parameters established for endometrial carcinoma and investigate the studies and findings related to these parameters.

Methods: The study included 50 patients who underwent surgery for endometrial carcinoma at our clinic between January 1999 and May 2001. Investigations and results related to prognostic factors in endometrial carcinoma were examined in these patients.

Results: The average age of the patients was found to be 56.72 ± 8.02 years. %70 of the patients were in Stage 1, 6% were in Stage 2, 22% were in Stage 3, and the remaining 2% were in Stage 4. Peritoneal cytology was positive in 5 out of 41 patients in whom peritoneal cytology was examined (12.2%). Among the 49 patients evaluated for myometrial invasion, 11 had tumor confined to the endometrium without myometrial invasion. In 16 patients, there was 1/3 inner myometrial invasion, 15 patients had 1/3 middle myometrial invasion, and 7 patients had 1/3 outer myometrial invasion. When we compared grade and depth of myometrial invasion in the cases examined, it was observed that out of 17 patients with Grade 1 tumors, 1 had deep myometrial invasion ($\frac{1}{2}$ outside), while out of 22 patients with Grade 2 tumors, 8 had deep myometrial invasion, and out of 4 patients with Grade 3 tumors, 3 had deep myometrial invasion.

Conclusion: The results of the examination of prognostic parameters, including age, histological grade, myometrial invasion, peritoneal cytology, histological type, adnexal spread, and tumor size, in the studied patient group were consistent with previous research in this field.

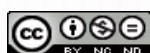
Keywords: Endometrial carcinoma, age, prognosis, cancer, prognostic parameters

INTRODUCTION

Endometrial carcinoma is the most common malignancy of the female genital system in developed countries, constituting approximately 4% of all carcinomas worldwide.¹ In Türkiye, the age-standardized rate of uterine corpus tumors is reported to be 10.5 per 100,000 women.² The incidence of endometrial carcinoma has increased over the years due to factors such as the prevalence of obesity, extended lifespan, and the widespread use of hormonal therapies like Tamoxifen in the treatment of breast cancer. The most common histopathological type is endometrioid carcinoma (EC), which accounts for 70-80% of the 288,000 uterine corpus cancers newly diagnosed worldwide in 2008.^{1,3}

According to the classification of the World Health Organization (WHO), endometrial tumors encompass seven histological types: serous carcinoma, clear cell carcinoma,

mucinous carcinoma, neuroendocrine tumor, mixed carcinoma, undifferentiated carcinoma, and dedifferentiated carcinoma.¹ In endometrial carcinoma, stage, histological type, grade, depth of myometrial invasion, presence of lymphovascular invasion, and the patient's age are the most significant prognostic factors.⁴ According to the International Federation of Gynecology and Obstetrics (FIGO) grading system, there are three histological grades of EC determined by the percentage of solid growth of tumor cells and the level of cytological atypia in the nuclei of tumor cells. Grades I and II ECs have a better clinical course, whereas Grade III ECs have a poorer prognosis and are considered part of the "high-grade" carcinoma group, along with serous and clear cell carcinomas.¹ Undifferentiated carcinoma represents endometrial carcinoma with no differentiation, while dedifferentiated carcinoma consists of tumors composed of



components of undifferentiated carcinoma and low-grade (Grade I and II) endometrioid carcinoma. Both of these are high-grade and aggressive tumors. Neuroendocrine tumors of the endometrium are quite rare and are classified into low-grade neuroendocrine tumors and high-grade neuroendocrine carcinoma (small cell and large cell).¹

Prognostic factors defined for endometrial carcinoma can be listed as follows: age, histological type, histological grade, myometrial invasion, peritoneal cytology, adnexal spread, intraperitoneal disease, lymphovascular space invasion (LVSI), cervical invasion, tumor size, steroid receptors, oncogenes, DNA ploidy, and molecular markers.

The purpose of this study is to retrospectively assess the correlation between surgical staging, histological grade, lymphatic involvement, peritoneal cytology, tumor histology, and tumor size in cases of endometrial carcinoma diagnosed and treated in our clinic.

METHODS

This study is a scientific investigation based on Nurgül Ulusoy master's thesis titled "Investigation of the Correlation of Prognostic Parameters in Cases of Endometrial Carcinoma," registered with the number 103431 at the National Thesis Center in 2001. All procedures conducted in this study were in accordance with ethical guidelines and the principles outlined in the Declaration of Helsinki.

A total of 50 patients diagnosed with Endometrial Carcinoma and treated at Bakırköy Women and Children's Diseases Training and Research Hospital Gynecologic Oncology Service between January 1, 1999, and May 28, 2001, were retrospectively examined. In this study, parameters related to prognostic factors of endometrial carcinoma, such as age, histological grade, myometrial invasion, peritoneal cytology, histological type, adnexal spread, and tumor size, were investigated. Parameters for which information could not be obtained, such as steroid receptors, oncogenes, DNA ploidy, and molecular markers, were excluded from the study.

Parameters known to be indicators of poor prognosis, such as the surgical stage of the disease, histological grade of the tumor, adnexal spread, myometrial invasion, and histological types of the tumor, were investigated in the advanced age group of patients. The most critical prognostic factors, including histological grade, depth of myometrial invasion, and lymph node involvement rates, were also compared. The predictive value of peritoneal cytology positivity for factors like increased histological grade, depth of myometrial invasion, and lymph node metastasis was evaluated in relation to these parameters and compared with patients with negative peritoneal cytology. The tumor histologies observed in both patient groups were examined. The relationship between tumor size, which is a known independent prognostic factor, and lymph node positivity rates and depth of myometrial invasion were also examined.

Endometrial Carcinoma cases were evaluated in terms of prognostic significance, particularly with respect to age,

surgical stage, histological grade, myometrial invasion, peritoneal cytology, lymphatic involvement, tumor histology, adnexal spread, and tumor size.

For staging the patients, the surgical staging system recommended by FIGO in 1988 was used instead of clinical staging. In the assessment of myometrial invasion, following the 1988 FIGO staging, it was categorized as ½ inner and ½ outer myometrial invasion. However, since many sources consider myometrial invasion depth as 1/3 inner, 1/3 middle, and 1/3 outer myometrial invasion, both approaches were noted in our study.

Tumor size, which has been reported as an independent prognostic factor, was evaluated in this study by considering the largest dimension of the tumor in cases where three dimensions of the tumor were provided, and by taking the tumor size indicated in other cases into account.

Statistical Analysis

As this research is descriptive in nature, numerical values were expressed as mean and standard deviation, while categorical data were presented as percentages.

RESULTS

The average age of the patients was found to be 56.72±8.02. Similar to the 21st FIGO Annual Report, if we consider patients with Grade 1-Stage 1 and Grade 3-Stage 3, 4, and report their average ages, the average age of Grade 1-Stage 1 patients was 50.93±5.25, while the average age of Grade 3-Stage 3, 4 patients was 63.00±2.82.

According to the FIGO 1988 surgical staging system, 70% of the patients were in Stage 1, 6% in Stage 2, 22% in Stage 3, and the remaining 2% were in Stage 4. There were no patients diagnosed with Stage 2a due to the absence of histopathological diagnosis of "endocervical glandular involvement." In terms of histopathological differentiation grades, it was observed that 17 patients were Grade 1, 22 patients were Grade 2, and 5 patients were Grade 3. There was no information available on grading for 6 patients.

Among the 49 patients evaluated for myometrial invasion, 11 had tumors limited to the endometrium with no myometrial invasion. In 16 patients, there was 1/3 inner myometrial invasion, in 15 patients, there was 1/3 middle myometrial invasion, and in 7 patients, there was 1/3 outer myometrial invasion. Among the 49 patients, 25 had myometrial invasion in the first half of the myometrium, while 13 had invasion in more than half of the myometrium.

Peritoneal cytology was examined in all stages, and 5 out of 41 patients had positive peritoneal cytology (12.2%).

Out of the 50 patients operated on for endometrial carcinoma, 45 underwent pelvic lymph node dissection, and 13 underwent pelvic-paraaortic lymph node dissection. Among patients who had pelvic lymph node dissection, 9 (20%) were positive for lymph node involvement in all stages, while among those who had paraaortic lymph node dissection, 1 (7.7%) was positive in all stages.

The examination revealed that the majority of the 50 patients had “endometrial adenocarcinoma.” **Table 1** provides the histological types of tumors.

Table 1. Histological types of tumor		
Tumor Histology	Number of patients	(%)
Endometrial Adenocarcinoma	42	84
Papiller Adenocarcinoma	6	12
Adenosquamous Carcinoma	1	2
Clear Cell Carcinoma	1	2

Adenoacanthoma, Mucinous Carcinoma, Mixed Type, and Other Undifferentiated Carcinoma diagnoses were not encountered.

Among the cases of endometrial carcinoma, among a total of 50 patients in all stages, adnexal spread was present in 3 of them. Out of these 3 patients with adnexal spread, peritoneal cytology was examined in 2, and it was found to be negative.

After examining the 50 patients, it was reported that in 4 of them, endometrial curettage was performed, and the entire tumor was removed with no residual tumor. Among the remaining patients, 16 had tumors smaller than 2 cm, 18 had tumors larger than 2 cm, and 6 had tumors that covered the entire endometrial cavity. Information regarding the tumor size of 6 patients could not be obtained.

In 16 of the 50 patients with endometrial carcinoma, the region from which the carcinoma originated was reported. In most of these patients (13 of them), the carcinoma was found to originate from the fundus. In 1 patient, the tumor originated from the anterior wall, in 1 patient from the posterior wall, and in 1 patient, it was near the endocervical canal.

As is known, numerous prognostic factors have been identified, and the presence or degree of some of them (such as myometrial invasion, lymphatic involvement, peritoneal cytology) increases with the presence of others (such as grade, tumor size, tumor histology). Therefore, it would be appropriate to present the information we have obtained together and comparatively.

With advancing age, an increase in the stage and grade of the disease is significant. As seen in **Tables 2** and **3**, the stage and grade at the time of diagnosis appear to increase with age.

Table 2. Age-stage relationship				
	40-49 age	50-59 age	60-69 age	70 age
Number of patients	9	22	15	4
Stage 1	8 (88.9%)	18 (82.0%)	8 (53.3%)	1 (25%)
Stage 2	1 (11.1%)	1 (4.5%)	0	1 (25%)
Stage 3	0	3 (13.5%)	6 (40%)	2 (50%)
Stage 4	0	0	1 (6.7%)	0

Table 3. Age-grade relationship				
	40-49 age	50-59 age	60-69 age	70 age
Number of patients	8	19	14	3
Grade 1	6 (75%)	9 (47.4%)	1 (7.1 %)	1 (33%)
Grade 2	2 (25%)	8 (42.1%)	11 (78.7%)	1 (33%)
Grade 3	0	2 (10.5%)	2 (14.2%)	1 (33%)

It is known that prognosis worsens in advanced age, and survival rates significantly decrease. This decline is in conjunction with extrauterine disease and an increase in the depth of myometrial invasion.

With advancing age, the increased risk of recurrence is reported to be associated with a higher tumor grade and a more frequent occurrence of poor histological types.

One of the most important prognostic factors of endometrial carcinoma, “grade”, increasing is also associated with an increase in the depth of myometrial invasion and lymph node involvement.

In the cases we examined, we compared grade and the depth of myometrial invasion. Among the 17 patients with Grade 1 tumors, 1 had deep myometrial invasion ($\frac{1}{2}$ outer), while among the 22 patients with Grade 2 tumors, 8 had it, and among the 4 patients with Grade 3 tumors, 3 had deep myometrial invasion. **Tables 4** and **5** provide the depth of myometrial invasion in $\frac{1}{2}$ and $\frac{1}{3}$ slices.

Table 4. Grade-myometrial invasion relationship					
Grade	Myometrial Invasion				
	n	Absent	1/3 inner	1/3 medium	1/3 outer
Grade 1	17	8 (47%)	7 (41%)	2 (12%)	0
Grade 2	22	1 (4.5%)	7 (31.8%)	9 (41%)	5 (22.7%)
Grade 3	4	0	1 (25%)	1 (25%)	2 (50%)

Table 5. Grade-myometrial invasion relationship				
Grade	Myometrial invasion			
	n	Absent	$\frac{1}{2}$ inner	$\frac{1}{2}$ outer
Grade 1	17	8 (47%)	8 (47%)	1 (6%)
Grade 2	22	1 (4.5%)	13 (59.1%)	8 (36.4%)
Grade 3	4	0	1 (25%)	3 (75%)

Out of the 17 patients with Grade 1 tumors, lymph node dissection was performed in 16 of them, and 1 of these patients had a positive lymph node. Among the 22 patients with Grade 2 tumors, lymph node dissection was performed in 20 of them, resulting in 4 patients with positive lymph nodes. Among the 5 patients with Grade 3 tumors, lymph node dissection was performed in 4 of them, and 2 patients had positive lymph nodes.

When patients with lymph node involvement were separated based on pelvic and paraaortic lymph node positivity, the results in **Table 6** were obtained:

Table 6. Relationship between histological grade and lymph node involvement				
Grade	Lymph Node Involvement			
	n	Pelvic	n	Paraortic
Grade 1	16	1 (6.25%)	6	0
Grade 2	20	4 (20%)	4	1 (25%)
Grade 3	4	2 (50%)	1	0

Obtaining information about the rate of paraaortic lymph node positivity in cases with pelvic lymph node positivity has not been possible due to the limited number of cases where both pelvic and paraaortic lymph node dissection were performed.

Myometrial invasion, which is a measure of tumor virulence, is the most reliable indicator of tumor volume. Increased myometrial invasion is also associated with an increase in extrauterine spread and lymph node metastasis.

Out of the 50 patients with endometrial carcinoma examined, 11 had no myometrial invasion and were limited to the endometrium; none of them had adnexal spread. Among the 25 patients with ½ inner myometrial invasion, only 1 had adnexal spread, while among the 13 patients with a depth of myometrial invasion of more than ½, 2 had adnexal spread.

In terms of lymph node involvement rates, out of the 11 patients with no myometrial invasion, 10 underwent lymph node dissection, and 1 of them had lymph node involvement.

It is known that the presence of positive peritoneal cytology in patients with endometrial carcinoma is predictive for factors such as increased grade, depth of myometrial invasion, and lymph node involvement, and other poor prognostic indicators are often found in conjunction with positive peritoneal cytology. In the 50 patients with endometrial carcinoma, it was reported that peritoneal fluid sampling was positive in 5 patients in all stages. Among the 5 patients with positive peritoneal cytology who had pelvic lymph node examination, 3 of them had positive pelvic lymph nodes. In the same group of patients, paraaortic lymph nodes were examined in 3 cases, and 2 of them were positive.

In patients with positive peritoneal cytology, the presence of lymphatic involvement and other poor prognostic indicators were examined, and the results are provided in **Table 7**.

Table 7. Relationship of poor prognostic factors in peritoneal cytology positive patients			
Presence of deep myometrial invasion:			
Absent invasion:	0	Absent invasion:	0
1/3 inner invasion:	1	½ inner invasion:	2
1/3 medium invasion:	2	½ outer invasion:	3
1/3 outer invasion:	2		
Grade 3 tumor rate: (Grade was not checked in 1 patient)			
Grade 1 tumor:	0		
Grade 2 tumor:	3		
Grade 3 tumor:	1		
Pelvic lymph node positivity:	3/5		
Paraortic lymph node positivity:	1/3 (Not examined in 2 patients)		
Adnexal spread:	0		

In patients with negative peritoneal cytology, the presence of lymphatic involvement along with other poor prognostic indicators was examined, and the results are provided in **Table 8**.

Table 8. Relationship of poor prognostic factors in peritoneal cytology-negative patients			
Presence of deep myometrial invasion:			
Absent invasion:	9 (26%)	Absent invasion:	9 (26%)
1/3 inner invasion	11 (31%)	½ inner invasion:	17 (48.5%)
1/3 medium invasion:	10 (29%)	½ outer invasion:	9 (25.5%)
1/3 outer invasion:	5 (14%)		
Grade 3 tumor rate: (Grade was not checked in 1 patient)			
Grade 1 tumor:	13 (38%)		
Grade 2 tumor:	18 (53%)		
Grade 3 tumor:	3 (9%)		
Pelvic lymph node positivity:	5/34 (14.7%)		
Paraortic lymph node positivity:	0 (Not examined in 8 patients)		
Adnexal spread:	2/36 (5.5%)		

Prognostic Factors	Peritoneal Cytology			
	n	Negative	n	Po
Grade 3 tumor rate	34	3 (9%)	4	1 (25%)
Pelvic lymph node metastasis	34	5 (14.7%)	5	3 (60%)
Paraortic lymph node metastasis	8	0	3	1 (33%)
Adnexal spread	36	2 (5.5%)	5	0
Deep myometrium invasion rate:				
>2/3 invasion	35	5 (14%)	5	2 (40%)
>1/2 invasion	35	9 (25.5%)	5	3 (60%)

When examining the tumor histologies encountered in patients with negative and positive peritoneal cytology, it was observed that the majority of histological types other than “endometrial adenocarcinoma” were present in the group of patients with positive peritoneal cytology.

Tumor size significantly affects lymph node involvement, myometrial invasion, and, consequently, survival rates in endometrial carcinoma. Among the 16 patients with a tumor diameter of less than 2 cm, none had pelvic lymph node metastasis. Among the 18 patients with a tumor diameter of more than 2 cm, 4 had positive pelvic lymph nodes. Among the 6 patients with the tumor involving the entire endometrial lining, 3 had pelvic lymph node metastasis.

Among the 16 patients with a tumor diameter of less than 2 cm, 3 had tumors limited to the endometrium. In these patients, 11 had invasion within the first ½ of the myometrium, and only 2 had invasion of more than ½. Among the 18 patients with a tumor diameter of more than 2 cm, 3 had tumors limited to the endometrium, 10 had invasion within the first ½ of the myometrium, and 5 had invasion of more than ½ of the myometrium. Among the 6 patients with the tumor involving the entire endometrial cavity, none had limited tumor in the endometrium, while 1 had invasion within the first ½ of myometrial invasion, and 5 had invasion of more than ½.

Among the 11 patients with a tumor diameter of less than 2 cm and myometrial invasion within the first ½, none had lymph node metastasis.

DISCUSSION

It appears that the stage and grade of endometrial carcinoma increase with age. According to the 21st FIGO Annual Report, the average age of patients using surgical staging is reported to be 60.4 for Grade 1-Stage 1 and 64.2 for Grade 3-Stage 4.⁵ In our study, when the surgical stage of the disease was examined with advancing age, it was observed that patients in the older age group were in advanced stages.

The grade of the disease increases with age.⁵ Increased risk of recurrence in older women is associated with the frequency of Grade 3 tumors. When patients in the older age group were examined for the histological grade of the tumor, Grade 3 tumors were not found in patients aged 40-49, whereas the rate of Grade 3 tumors was 10.5% in the 50-59 age group. In patients aged 60 and above, this rate increased to 18%.⁶⁻⁸

Survival rates decrease with increasing age in women with endometrial carcinoma, and this decrease is associated

with an increase in extrauterine disease and deep myometrial invasion.⁸ In our study, among 50 cases of endometrial carcinoma, adnexal spread was detected in 3 cases. When these 3 patients were evaluated according to age groups, it was observed that there was no adnexal spread in patients aged 40-49 while in the 50-59 age group, the rate of adnexal spread was 4.5%. In patients aged 60 and above, this rate increased to 10.5%. As a result, it was observed that adnexal spread rates increased with advancing age.

Myometrial invasion is one of the factors that reduce survival rates in older age groups.⁸ When we looked at the relationship between age and myometrial invasion depth, it was observed that there was no deep myometrial invasion (outside 1/3) in young patients aged 40-49. In patients between the ages of 50-59, the rate of deep myometrial invasion was 5%, while in those aged 60 and above, this rate was 31.5%. Similar to disease stage, grade, and adnexal spread, the depth of myometrial invasion was also found to increase with advancing age.

Increased risk of recurrence with advancing age is associated with Grade 3 tumors and poor histological types.⁹ In our study, when patients were examined for the histological grade of the tumor, it was found that there was no Grade 3 tumor in patients aged 40-49, while the rate of Grade 3 tumors in the 50-59 age group was 10.5%. In patients aged 60 and above, this rate increased to 18%.

The histological grade of the tumor is one of the most important prognostic factors in endometrial carcinoma. It is reported that with increasing grade, the depth of myometrial invasion also increases, and deep myometrial invasion is found in 50% of Grade 3 cases.¹⁰⁻¹² In our study, it was observed that patients with higher histological grades had higher rates of myometrial invasion.

Studies have shown that lymph node involvement increases with increasing grade.¹⁰⁻¹² In our study, it was observed that 6.25% (1 patient out of 16) of Grade 1-Evolution 1 patients had pelvic lymph node involvement, and this rate increased to 20% in Grade 2 patients. Among the 4 patients with Grade 3 tumors, 50% had pelvic lymph node involvement.

Increased myometrial invasion is associated with an increase in the rate of extrauterine disease in endometrial carcinoma.^{13,17,18} In our study, while there was no adnexal spread in patients without myometrial invasion, adnexal spread was observed in 4% of patients with 1/2 inner myometrial invasion and 15.4% of patients with 1/2 outer myometrial invasion.

Studies confirm the relationship between myometrial invasion depth and lymph node involvement. In patients without myometrial invasion, the rate of pelvic lymph node metastasis is 1%, whereas in patients with deep myometrial invasion, this rate increases to 25%. The rate of para-aortic lymph node metastasis in patients with deep myometrial invasion is reported as 17%.¹³ In our study, it was observed that lymph node involvement rates were higher in patients with deep myometrial invasion compared to those without invasion.

Positive peritoneal cytology is predictive of prognostic factors such as advanced histological grade, deep myometrial invasion, and lymph node metastasis.^{14,19} In patients with positive peritoneal cytology, pelvic lymph node metastasis was found in 25% and para-aortic lymph node metastasis in 19%.²⁰ In our study, lymph node involvement was observed in 60% of the positive peritoneal cytology patients who underwent pelvic lymph node dissection and in 33% of those who underwent para-aortic dissection.

Among patients with negative peritoneal cytology, 34 underwent pelvic lymph node dissection, and 8 underwent para-aortic lymph node dissection. The rate of pelvic lymph node involvement in these patients was 14.7%, and there was no para-aortic lymph node involvement. It was observed that lymph node involvement rates were higher in positive peritoneal cytology patients.¹⁴

Patients with positive peritoneal cytology often have other poor prognosis indicators, and the rate of Grade 3 tumors in these patients is reported to be 37%. In our study, when patients with positive peritoneal cytology were examined for grade, it was found that 25% of them had Grade 3 tumors. In contrast, the rate of Grade 3 tumors in patients with negative peritoneal cytology was 9%.

Deep myometrial invasion is a poor prognostic indicator and is often found in patients with positive peritoneal cytology. It is reported that in patients with positive peritoneal cytology, this rate is 37%.¹⁴ In our study, the rates of deep myometrial invasion were compared between two patient groups with positive and negative peritoneal cytology. Among the 5 patients with positive peritoneal cytology, it was observed that 40% had 1/3 outer myometrial invasion (1/2 outer myometrial invasion was present in 3 patients, 60%). In the group with negative peritoneal cytology, the rate of deep myometrial invasion was 14% (1/3 outer) and 25.5% (1/2 outer).

When the histological types of tumors were examined, it was observed that among the 36 patients with negative peritoneal cytology, 92% had tumors of the endometrial adenocarcinoma type, and the remaining 8% had papillary adenocarcinoma.

Studies have shown that tumor size is an independent prognostic factor and particularly affects survival rates in relation to lymph node metastasis, myometrial invasion, and their associated factors.^{15,16} In tumors smaller than 2 cm, the rate of pelvic lymph node metastasis is 4%, while in tumors larger than 2 cm, it is 15%, and in cases where the tumor covers the entire endometrial cavity, it is 35%.⁶

In our study, tumor size and pelvic lymph node involvement rates were investigated, and it was observed that lymph node involvement rates increased with increasing tumor size.

The size of the tumor is an important factor in influencing survival along with myometrial invasion.¹⁸ In our study, it was observed that as the tumor size increased, the rate of localized tumors in the endometrium decreased, and the rate of deep myometrial invasion increased.

Studies have reported that in tumors smaller than 2 cm and with myometrial invasion depth less than 1/2, there is no lymph node metastasis.⁶ In our study, none of the 11 patients with tumors smaller than 2 cm and myometrial invasion less than 1/2 had lymph node metastasis, which is consistent with the literature data.

CONCLUSION

In the elderly age group, there is an increase in adnexal spread, the rate of deep myometrial invasion, and aggressive histological types. As the grade increases, the depth of myometrial invasion and lymph node involvement also increase. The increasing depth of myometrial invasion is associated with higher rates of adnexal spread and lymph node involvement.

ETHICAL DECLARATIONS

Ethics Committee Approval

This study is the scientific study of Nurgül Ulusoy master's thesis named "Investigation of the correlation of prognostic parameters in cases of endometrium carcinoma", registered at the National Thesis Center with the number 103431, dated 2001.

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study had no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

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